

## SOME INTERESTING AGARICS AND A RARE SPECIES OF *SCLERODERMA* PRESENTED AT THE II AND III MYCOLOGICAL STAGES OF ESPLUGAS DE LLOBREGAT (BARCELONA, CATALUÑA)<sup>1</sup>

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**ABSTRACT** - During the II and III mycological stages held in Esplugas de Llobregat (Barcelona) in 1988 and 1989, some interesting agarics and Gasteromycetes were studied by us. The results are presented in this work, where the following taxa are described or commented: *Amanita franchetii*, *Calocybe ionides*, *Entoloma corvinum*, *E. hebes*, *Lyophyllum leucophaeatum*, *Pluteus podospileus*, *Psathyrella caput-medusae*, *Russula cavipes*, *R. cistoadelpha*, *R. nuragica*, *R. subazurea*, *Xerocomus moravicus* and *Scleroderma fuscum*. Three species have not been previously recorded in the Iberian Peninsula: *Lyophyllum leucophaeatum*, *Pluteus podospileus*, and *Russula nuragica*. The new combination *Panaeolus cyanescens* var. *bisporus* Moreno & Esteve-Raventós comb. nov. is proposed.

**RÉSUMÉ** - Nous étudions les espèces suivantes d'Agaricales et de Gastéromycètes: *Amanita franchetii*, *Calocybe ionides*, *Entoloma corvinum*, *E. hebes*, *Lyophyllum leucophaeatum*, *Pluteus podospileus*, *Psathyrella caput-medusae*, *Russula cavipes*, *R. cistoadelpha*, *R. nuragica*, *R. subazurea*, *Xerocomus moravicus* et *Scleroderma fuscum* récoltées lors de la IIème et IIIème exposition mycologique de Esplugas de Llobregat (Barcelone). Trois espèces sont nouvelles pour la mycoflore ibérique: *Lyophyllum leucophaeatum*, *Pluteus podospileus* et *Russula nuragica*. Nous proposons la nouvelle combinaison *Panaeolus cyanescens* var. *bisporus* Moreno & Esteve-Raventós, comb. nov.

**KEY WORDS** : Taxonomy, Agaricales s.l., Gasterales, Catalonia, Spain.

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### INTRODUCTION

The Mycological Stages held in Esplugas de Llobregat (Barcelona) in 1988 and 1989 proved up to be a good opportunity to study some interesting agarics. This aim of this work has been to present those species that

might be of scientific interest, due to their rarity or because of their ecological or chorological interest, mainly for the Catalonian region.

The photographs have been made with a Nikon microscope, model Labphot, with an incorporated semi-automatic photographic system. The material has been examined microscopically in Congo red and  $\text{NH}_4\text{OH}$  (5%).

The specimens have been deposited at the Herbarium of Plant Biology (Botany) of the University of Alcalá de Henares (Madrid) -H.AH-. A complete protologue is indicated for those taxa not recorded previously in Spain, according to the consulted bibliographic references, or due to their recent creation.

### CATALOGUE OF SPECIES

*Amanita franchetii* (Boud.) Fayod. *Ann. Sci. Nat., Bot.* 9: 316, 1889.  
= *Amanita queletii* Bon & Dennis, *Doc. Mycol. (Lille)* 56: 22, 1984.  
= *Amanita aspera* (Pers.:Fr.) Hooker, *s. auct., non Pers.*

*Amanita franchetii* is a well-known species in our Peninsula, mainly in Catalonia; however, it might be convenient to emphasize some points concerning its present nomenclatural treatment. The classic name *A. aspera* (Pers.:Fr.) Hooker is no longer valid, the taxon described by Persoon belongs to a species of *Lepiota* (Bon, 1984). The position of *A. franchetii* as the valid species name relegates *A. queletii* to a mere synonym.

The taxon is characterised by its yellow and thick scales on the cap and the napiform stem covered by yellowish scaly zones under the ring. Some infraspecific taxa have been created by the colour variation exhibited by the species.

*Material examined:* Sant Grau (Gerona), in humus of *Quercus suber* and *Arbutus unedo*, 20/X/1988, leg. G. Moreno & C. Illana, H.AH 11876.

*Calocybe ionides* (Bull.:Fr.) Donk, *Nova Hedwigia* 5: 43, 1962.

The specimens studied fit the recent description of Dermek (1987); the purplish-violet colours of the cap and stem and the whitish to yellowish gills are typical. *Calocybe obscurissima* (Pers.) Moser shows brown, never violet, colours.

*C. ionides* has been previously recorded in the Basque Country (Lacozqueta, 1885; Pérez del Moral, 1979) and in central Spain (Esteve-Raventós, 1987). A colour plate has been recently published in the VI collection of "Bolets de Catalunya" (n° 259, 1990), edited by the Catalonian Mycological Society.

*Material examined:* Santa Fe del Montseny (Barcelona), in humus of *Fraxinus excelsior* and *Acer sp.*, 17/X/1989, leg. R. Pöder & G. Moreno. H.AH 11874.

*Entoloma corvinum* (Kühner) Noordel., *Nord. J. Bot.* 2: 162, 1982. Fig. 1-3.  
≡ *Rhodophyllus corvinus* Kühner, *Rev. Mycol. (Paris)* 19: 4, 1954.

This rare species shows a beautiful dark-blue cap, neither striate nor hygrophanous, covered by little squamules; the concolorous stem becomes paler when dry and the gills never exhibit a blue edge. Its spores show a great variability (from nearly isodiametric to heterodiametric).  $Q = 1,1-1,6$ .

In Spain, it has been probably mistaken with *E. chalybaeum* or *E. mougeotii*. *E. serrulatum* shows a dark-blue gill edge. It has been previously recorded from Granada (Noordeloos, 1987) and Jaén (Ortega, 1990).

*Material examined:* Santa Fe del Montseny (Barcelona), among grass in a mixed forest of *Fraxinus excelsior* and *Acer sp.*, 17/X/89, leg. R. Pöder & G. Moreno. H.AH 11875.

*Entoloma hebes* (Romagn.) Trimbach, *Doc. Mycol. (Lille)* XI(44): 6, 1981. Fig. 4-7.

= *Entoloma hirtipes* var. *hebes* (Romagn.) Esteve-Raventós, *Bol. Soc. Micol. Madrid* 14: 147, 1990.

*Entoloma hebes* is a member of section *Nolanea* with "mycenoid" habit, umbonate cap and mealy smell. Heterodiametric spores and a sterile gill edge composed of variable cystidia are similar to *E. hirtipes* and its position as a distinct species from this is arguable.

It was only known in our Peninsula from the province of Madrid in humus of *Quercus pyrenaica* forest (Esteve-Raventós & Moreno, 1990).

*Material examined:* Santa Fe del Monseny (Barcelona), in humus of *Fraxinus excelsior* and *Acer sp.*, 17/X/89, leg. R. Pöder & G. Moreno. H.AH 11878.

*Lyophyllum leucophaeatum* (P. Karst.) P. Karst., *Acta Soc. Fauna Fl. Fenn.* 2: 3, 1881. Fig. 8-14.

Cap 3,5-5cm diam., convex, brownish-grey at first, then blackening. Gills emarginate to adnate, close, becoming black when old or when touched. Stem concolorous, 3,5-4,5 x 0,6-0,8cm, cylindrical to bulbous, bruising grey-brown. Smell faint or none. Epicutis formed by branched, clamped hypahe, 3-6,5µm wide. Spores 6-9 x 2-3µm, cylindrical to fusiform, hyaline, non-amyloid, somewhat warty. Basidia 4-spored, clavate and clamped. Marginal cystidia very variable, generally filiform with short excrescences, sparse.

The specimens studied fit mostly the description of Clemençon (1982). There does not seem to be any reference to this species in our geography, not even under the epithet *fumatofetens* ( Secr.) J. Schaeff.

*Material examined:* Santa Fe del Montseny (Barcelona), in humus of *Abies alba* and *Fagus sylvatica*, 17/X/89, leg. Soc. Micol. Esplugas de Llobregat. H.AH 11881.

*Panaeolus cyanescens* Berk. & Broome var. *bisporus* (Malenç. & Bertault) Moreno & Esteve-Raventós **comb. nov.**, Fig. 16-22.

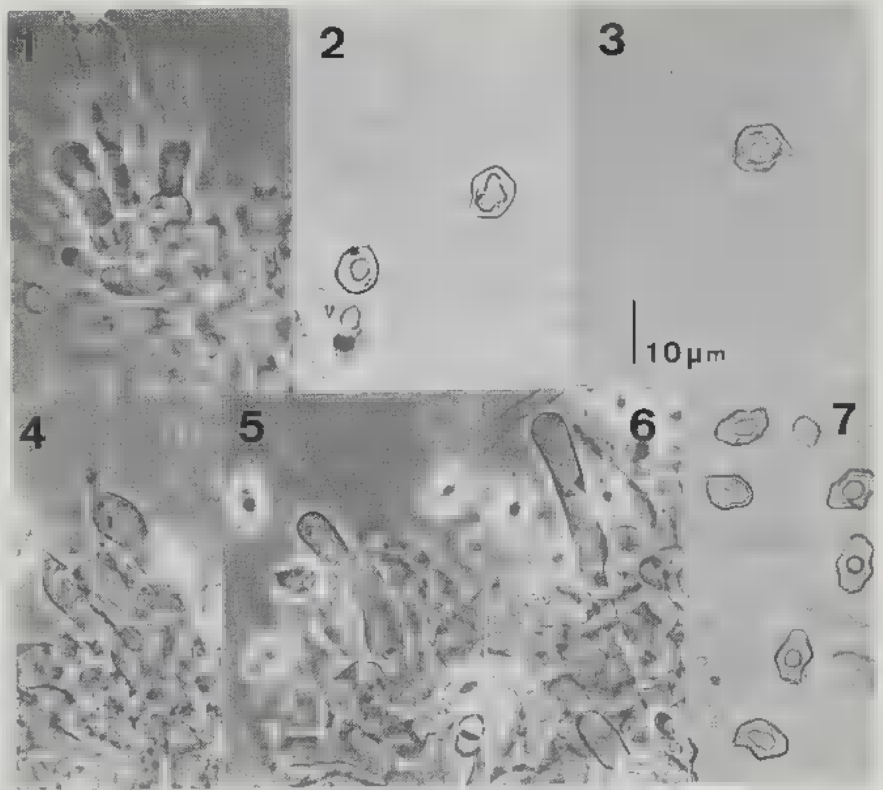


Fig. 1-3. *Entoloma corvinum* (Kühner) Noordel. 1: marginal cystidia. 2-3: spores.  
 Fig. 4-7. *Entoloma hebes* (Romagn.) Trimbach. 4-6: marginal cystidia. 7: spores.

= *Copelandia papilionacea* var. *bispora* Malenç. & Bertault, Champ. Sup. Maroc 1: 301, 1970.

= *Copelandia bispora* (Malenç. & Bertault) Singer & Weeks, *J. Nat. Prod.* 42: 472, 1979.

The material fits the description of Moreno et al. (1986). This rare species is characterised by its small habit, flesh with bluish tints with age or when touched and, microscopically, by its predominantly 2-spored basidia, citriform spores with an apical and central germ-pore and typical metuloid cystidia with thick walls and brownish contents. The sterile gill-edge is totally formed by lageniform to utriform cystidia.

We follow Ola'h's (1970) sense of considering *Copelandia* as synonymous with *Panaeolus*, and that is the reason for the new combination. Clamps are present in var. *cyanescens* and var. *bisporus* as well, according to Ola'h (1970) and Weeks et al. (1979); moreover, bluing of the flesh occurs in both taxa and, according to our own observations in the Iberian collections, may be more or less distinct depending on environmental factors. *Panaeolus cyanescens* var. *bisporus* is a typical Iberian-North African taxon while var.

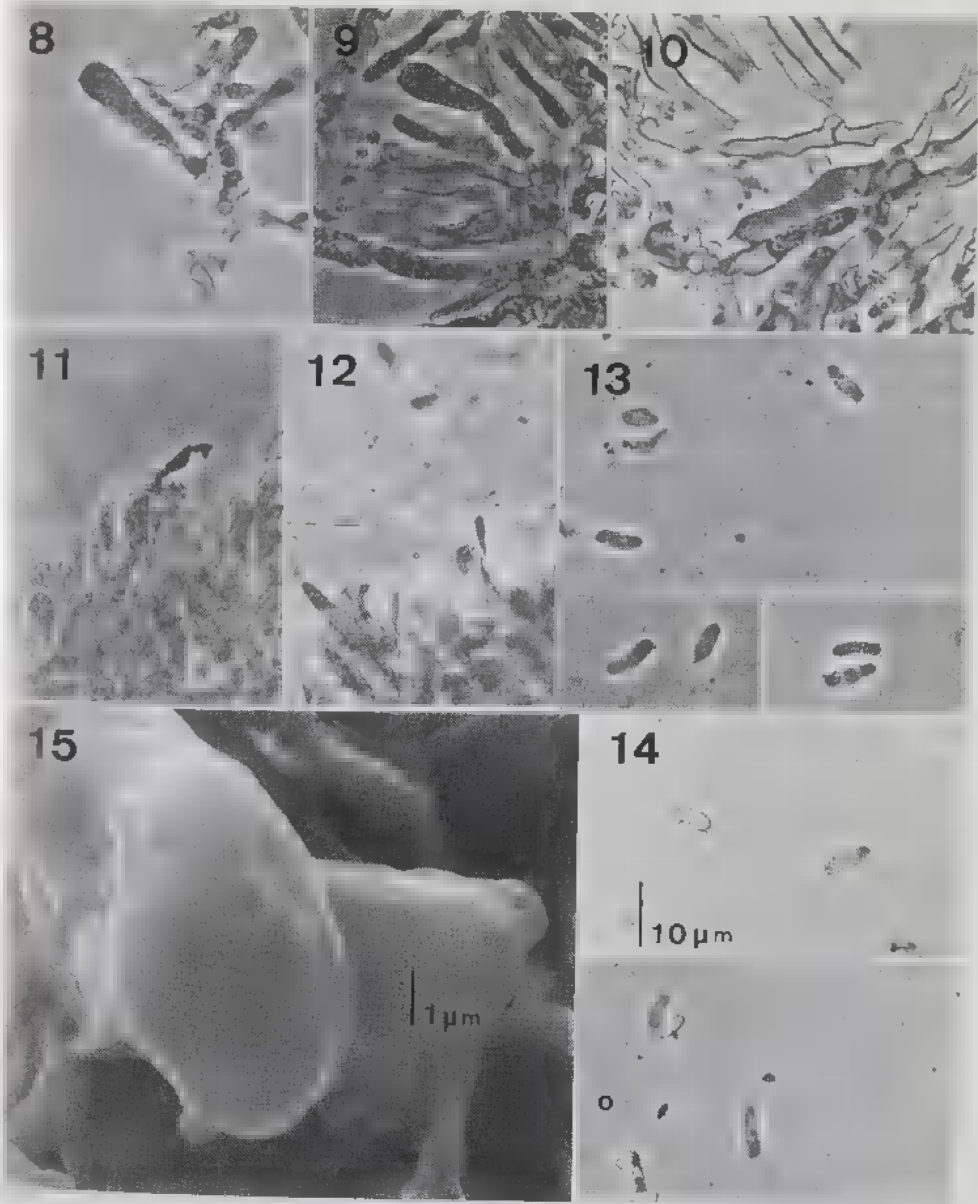


Fig. 8-14. *Lyophyllum leucophaeatum* (P. Karst.) P. Karst. 8-9: basidia. 10: clamp-connections. 11-12: marginal cystidia. 13-15: spores.

*cyanescens* is widespread in tropical areas (Weeks et al., 1979). This species was previously recorded in our country by Moreno & Barrasa (1977) and Moreno et al. (*loc. cit.*), growing in grass.

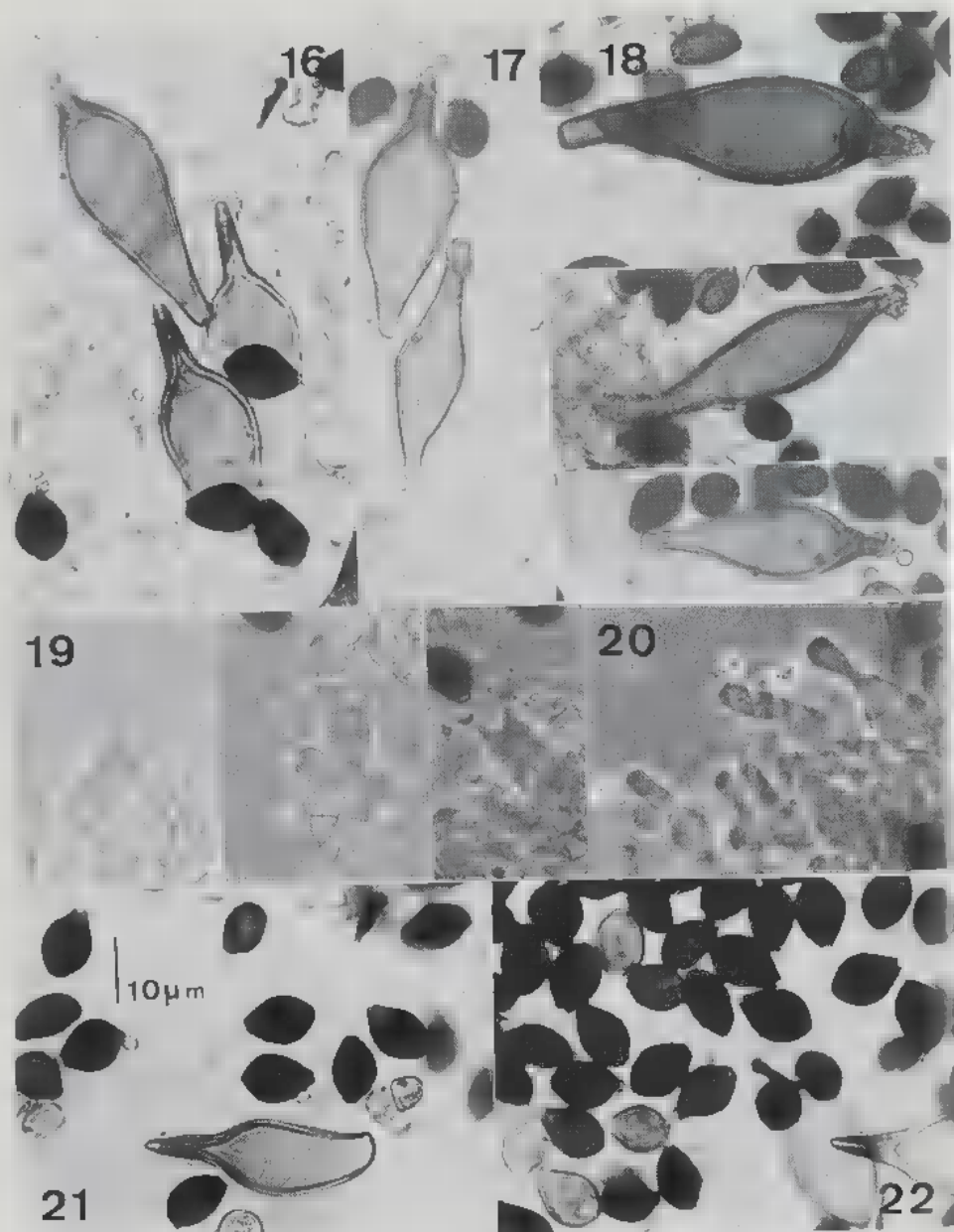


Fig. 16-22. *Panaeolus cyanescens* var. *bisporus* (Malenç. & Bertault) Moreno & Esteve-Raventós. 16-18: facial cystidia. 19: bisporic basidia. 20: marginal cystidia. 21-22: spores.

*Material examined:* Sant Boi, hotel El Castel (Barcelona), in grass of *Stenotaphrum americanum*, 18.X.88, leg. C. Illana, R. Pöder & G. Moreno. H.AH 11871.

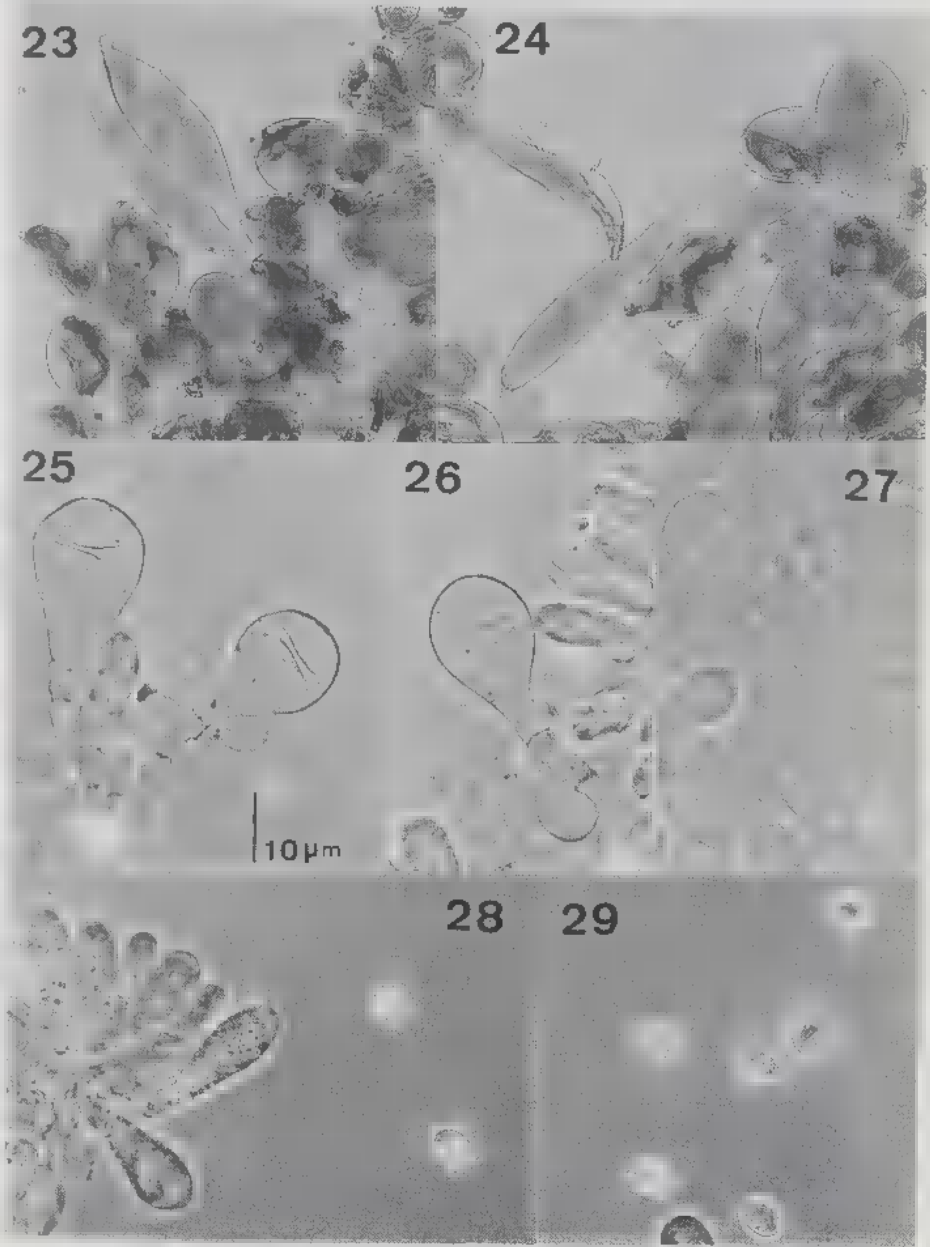


Fig. 23-29. *Pluteus podospileus* Sacc. & Cub. in Sacc. 23-24: epicutis. 25-27: marginal cystidia. 28: basidia. 29: spores.

*Pluteus podospileus* Sacc. & Cub. in Sacc., Syll. Fung. 5: 672, 1887, Fig. 23-29.

The collection showed the following characters: cap 1-1.5cm, russet brown to greyish-brown, granulate-wrinkled, with striate margin. Stipe 1.2-1.5 x 0.1cm, cylindrical, greyish, wholly covered with brown floccules. Epicutis hymeniform, formed by clavate and fusiform to cylindrical terminal cells, with brown vacuolar pigment. Clamps absent. Spores 7-7.5 x 4.5-6µm, ovoid to ellipsoid, slightly constricted at the middle. Basidia 4-spored and clavate. Marginal cystidia globose to claviform, 22-35 x 14-22µm, with catenulate base.

According to Vellinga & Schreurs (1985), *P. podospileus* presents two forms: forma *podospileus* and forma *minutissimus*; the latter lacks brown floccules on the stipe or has them only in its basal part. *P. minutissimus* was described by Maire (1937) in Catalonia. No data about its presence in our Peninsula are known by us.

*P. podospileus* belongs to section *Celluloderma* Fayod, subsection *Mixtini* Singer, characterised by the epicutis formed by claviform cells mixed with fusiform to cylindrical ones.

*Material examined*: Santa Fe del Monseny (Barcelona), in humus of *Fagus sylvatica* and *Corylus avellana*, 17 X/89, leg. R. Pöder & G. Moreno H.AH 11882.

*Psathyrella caput-medusae* (Fr.) Konrad & Maubl. Encycl. Mycol. 14 (Agaricales 1): 127, 1948, Fig. 30-34.

This rare lignicolous species of *Psathyrella* grows in clumps, and shows a fibrillose to squamose cap, a wide and striated ring and a scaly, tapering stipe. The spores are rather typical, ellipsoid to amygdaliform, without germ-pore and with a prominent hilar-appendix. Marginal and facial cystidia are variable, utriform with capitate apex to lageniform.

Calonge (1987) recorded this species from the province of Segovia (Castilla) on *Pinus sylvestris* stump; it was previously known from the Mycological Catalogue of the Basque Country (Anonimo, 1981).

*Material examined*: Campellas (Gerona), in *Pinus sylvestris* stump, 18/X/89, leg. Soc. Micol. Esplugas de Llobregat. H.AH 11880.

*Russula cavipes* Britzelm., Hymenomyces aus Südbayern: 7, pl. 512, f. 98, 1893, Fig. 35-39.

The fruitbodies examined showed a cap with lilaceous-violet to blackish colours, a white stipe and distant pale gills. Spore-print cream. Taste acrid. Epicutis with abundant dermatocystidia and spores 9 x 8µm, ellipsoid, with crowded warts connected by a few lines.

It has been rarely recorded in Spain, only known from Catalonia up to date (Bertaux, 1964; Singer, 1982).



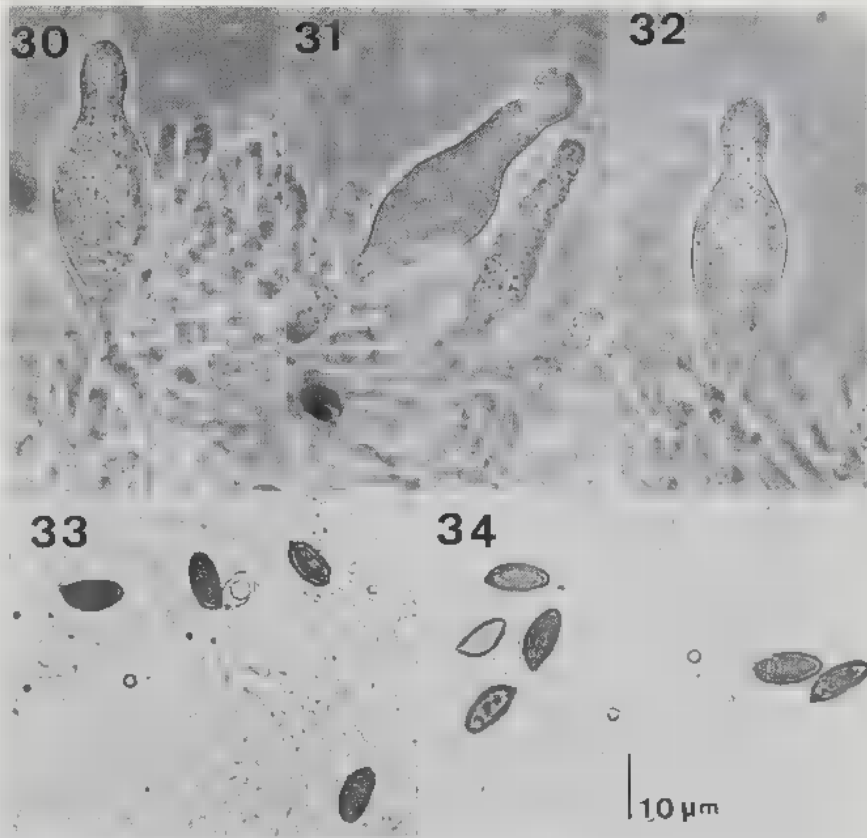


Fig. 30-34. *Psathyrella caput-medusae* (Fr.) Konrad & Maubl. 30-32: cystidia. 33-34: spores.

*Material examined:* Campellas (Gerona), in humus of *Pinus sylvestris*, 18/X/89, leg. Soc. Micol. Esplugas de Llobregat. H.AH 11880.

*Russula cistoadelpha* Moser & Trimbach, *Sydowia* 34: 125, 1981. Fig. 40-46.

It has been recently described by Moreno & Esteve-Raventós (1988) from Extremadura, growing under *Cistus*. It is only known from Italy, France and Spain, but is probably widespread in mediterranean areas.

The samples showed cylindrical and septate cheilocystidia and spores  $8.9 \times 7-8 \mu\text{m}$ , ellipsoid and warty-subreticulate.

*Material examined:* Sant Grau (Gerona), in humus of *Cistus salviaefolius* and *Pinus pinaster*, 20/X/88, leg. C. Illana & G. Moreno. H.AH 11870.

*Russula nuragica* Sarnari, *Boll. Gruppo Micol. G. Bresadola, Trento* 29: 16, 1986. Fig. 47-49.

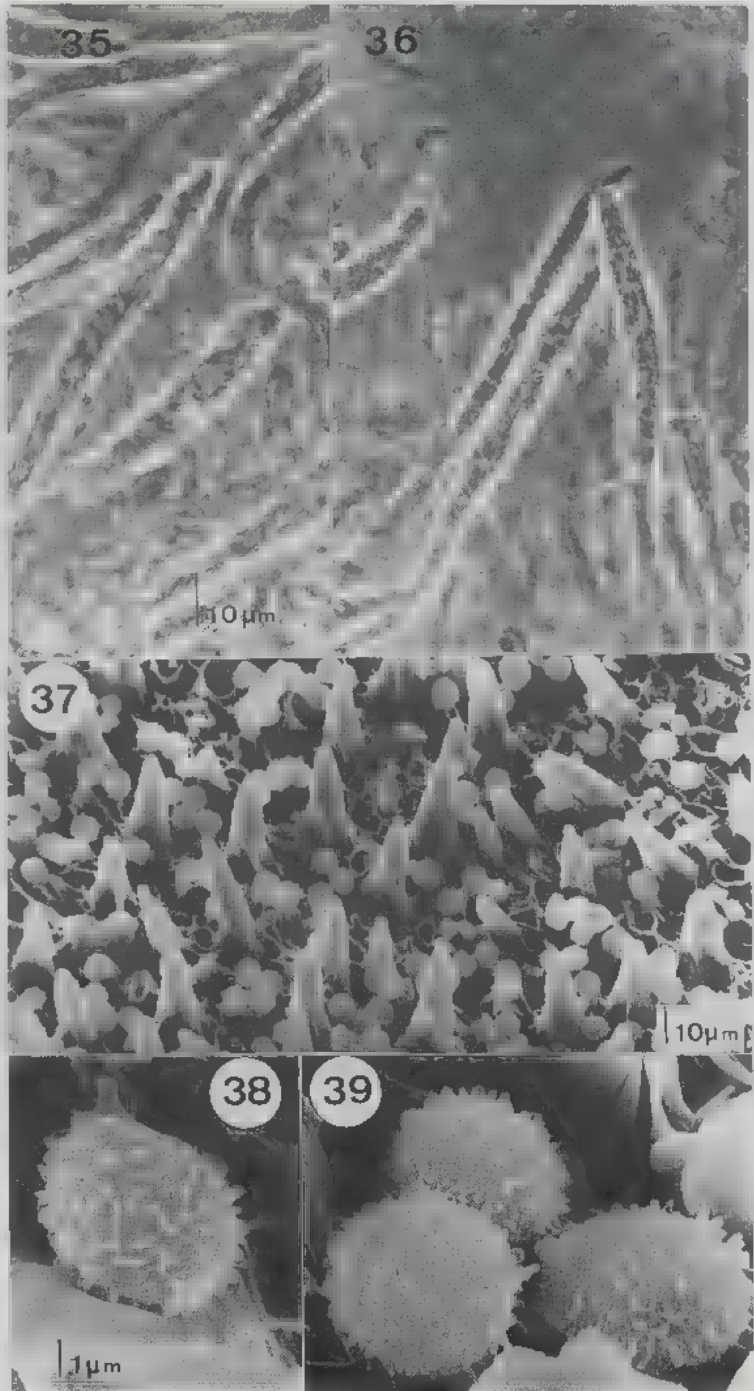


Fig. 35-39. *Russula cavipes* Britzelm. 35-36: dermatocystidia. 37: facial cystidia. 38-39: spores.

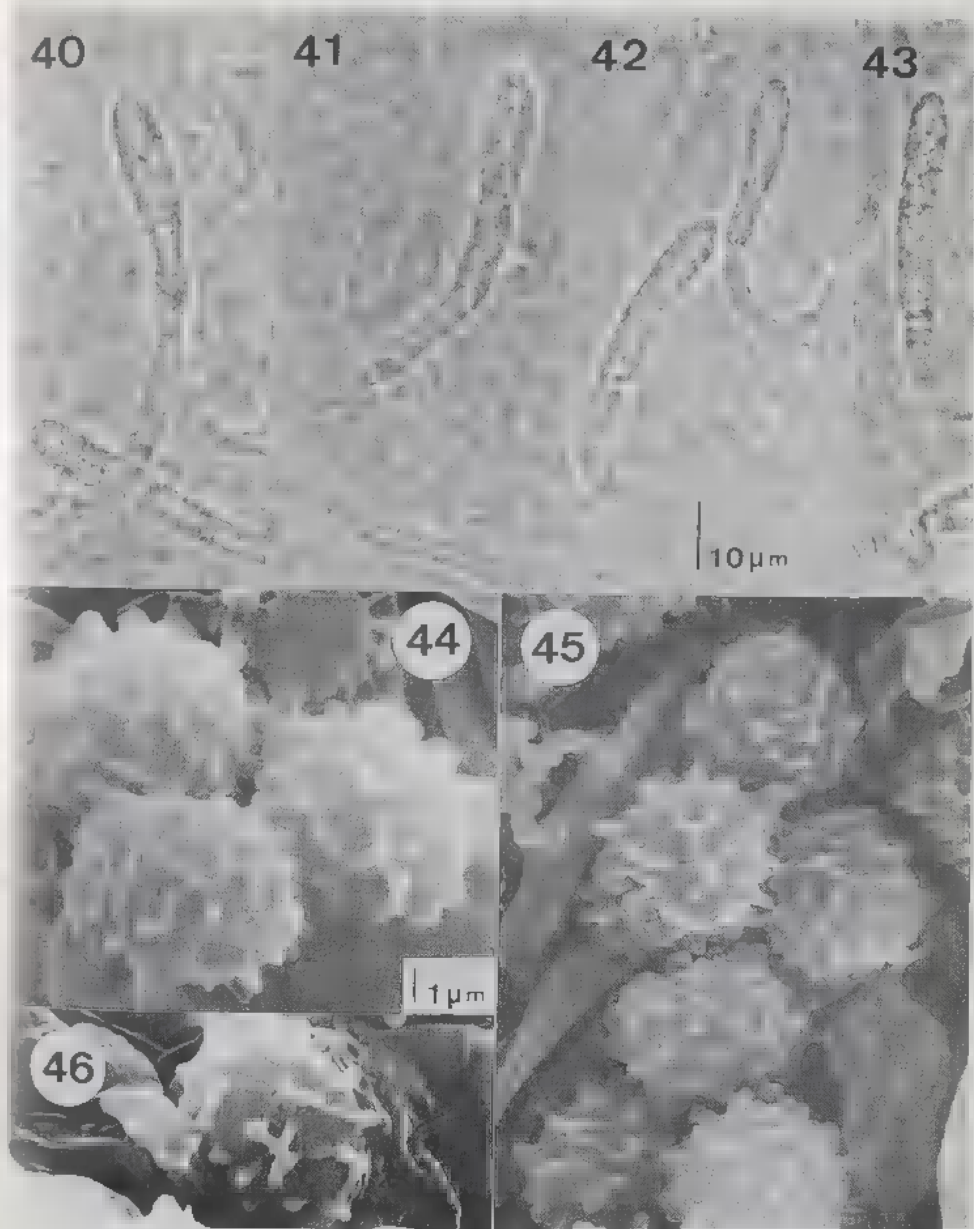


Fig. 40-46. *Russula cistoadelpha* Moser & Trimbach. 40-43: dermatocystidia. 44-46: spores.

Cap 3-6cm, grey with lilaceous tints at the edge, discolouring when old, convex to slightly depressed at the centre. Gills whitish to cream, yellowing when old. Stipe whitish, slightly greyish with age, cylindrical to claviform.

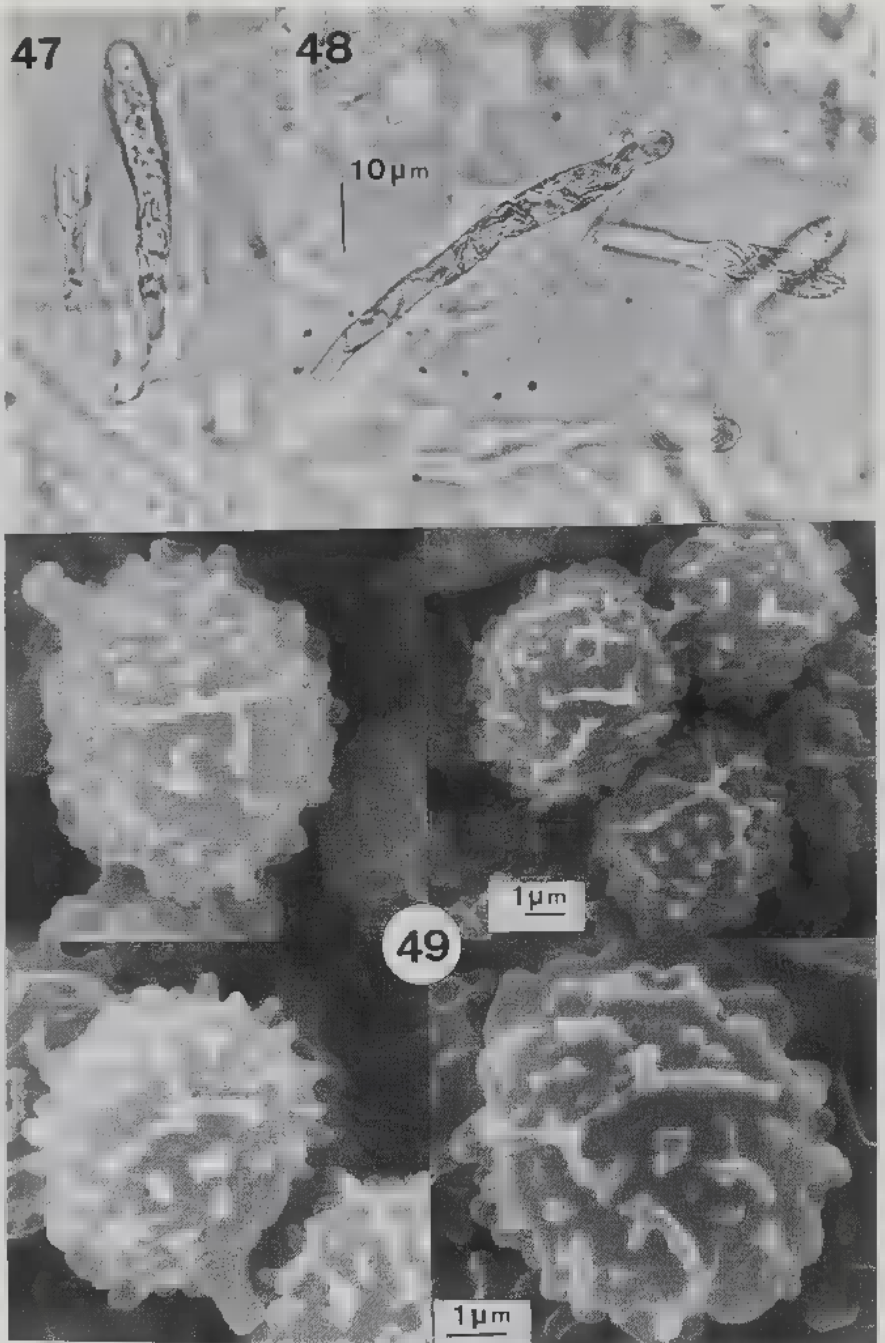


Fig. 47-49. *Russula nuragica* Sarnari. 47-48: epicutis. 49: spores.

Spore-print yellow according to Romagnesi's chart (1967). Taste mild, acrid in the gills.

Epicutis a trichodermis, with septate, branched hyphae, where the terminal cell is often a typical dermatocystidium that becomes blackish in SBA reagent. Spores 7-9 x 6-7.5µm, amyloid, warty-reticulate.

*R. nuragica* is only known from Italy and France (Bon, 1988). It is characterised by the lilaceous colours of the cap on a more or less greyish ground (similar to taxa of *Griseinaceae*). Its yellowish spore-print, the typical dermatocystidia, spores and mediterranean habitat (mainly in *Quercus suber*, *Q. ilex* forests...) are unmistakable.

*Material examined:* Sant Grau (Gerona), in humus of *Quercus suber*, *Q. ilex* and *Q. cerris*, 20/X/88, leg. G. Moreno & C. Illana. H.AH 11877.

*Russula subazurea* Bon, *Doc. Mycol. (Lille)* 17: 34-35, 1075. Fig. 50-54.

This species was originally described from France and has been recently found in Italy (Donelli, 1988) and Spain (Moreno et al., 1990). It is a small species of section *Lilaceae*, characterised by violet colours on cap and sometimes in the stipe, white gills, pale cream spore-print, mild taste and, microscopically, by its primordial hyphae and spores with a reticulated ornamentation.

*R. lilacea* var. *retispora* Sing. does not share the same ecology (though it is macro and microscopically quite similar); *R. subazurea* is frequent in mediterranean areas, often under *Arbutus* and *Quercus* sps.

*Material examined:* Mont Negre (Barcelona), in humus of *Quercus suber*, 19/X/88, leg. G. Moreno & C. Illana. H.AH 11869. Sant Grau (Gerona), in humus of *Quercus suber* and *Arbutus unedo*, 20/X/88, leg. G. Moreno & C. Illana. H.AH 11868.

*Xerocomus moravicus* (Vacek) Herink, *Česka Mykol.* 18: 193-203, 1964.

= *Boletus tumidus* Fr. ss. Peltereau

= *X. boudieri* Sing. in *Ann. Mycol.* 40: 43 nom. nudum, 1942.

= *B. leonis* Reid in *Nova Hedwigia*, Supplement: Icones of Rare and Interesting Fungi, 1: 7, Pl. 3a-b, 1966.

Our material fits the description of Herink (1964) nearly perfectly. The surface of cap is subsquamulose, finely areolate in the center. Stipe cylindrical to fusiform, slightly rooting, pale ochraceous, minutely granulate punctate at apex. Flesh pale ochraceous, more coloured towards the stem base.

For the following reasons, elucidated by one of us (Pöder), we consider *B. leonis* Reid a synonym: Reid, in his original description (1966, p. 11) noted: "Nevertheless, there occurs in Czechoslovakia a closely related species - *B. moravicus* (Vacek) distinguished by a pink tinge to the pileus - and it is possible that some of the records of this species may represent *B. leonis*. Thus the account of *B. moravicus* published by Herink (1964) could, in part, refer to *B. leonis* although it is not quite clear whether any of his specimens showed the characteristic surface to the pileus as found in *B. leonis*". How-

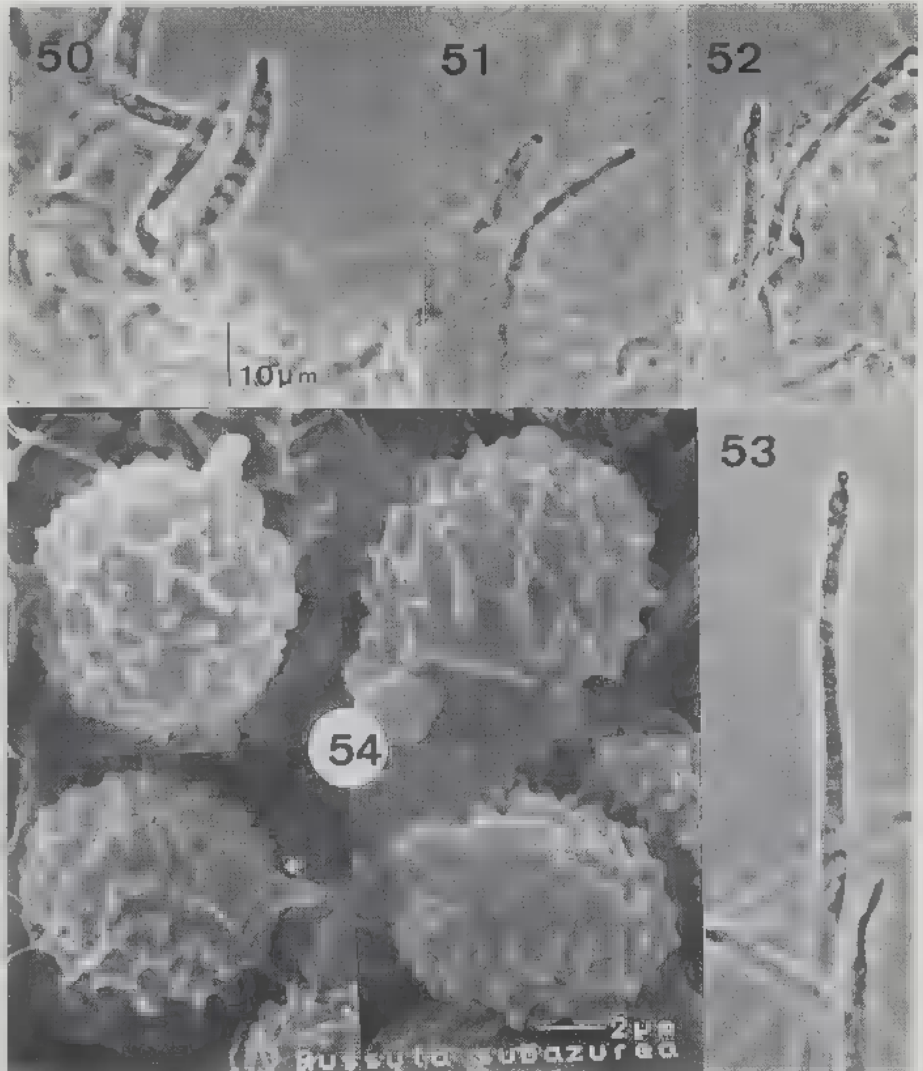


Fig. 50-54. *Russula subazurea* Bon. 50-53: primordial hyphae. 54: spores.

ever, according to this latter feature he mentioned Blum (1962) as a whitish pileus "... recouverte de très légères squamules ..." without mentioning that Blum at the same place described the colour of pileus as "fauve ou roussâtre".

It is correct that the specimens of *X. moravicus* in Herink's coloured plate (T. 54) do not show an areolate or disrupted center of pileus but in the black and white reproductions of photographs (Tab. XIII and Tab. XIV) in his article this character is at least as evident as in Reid's plate of *B. leonis*. In addition, Herink in his redescription noted "Revêtement...",

finement tomenteux. ..., puis progressivement rompu-aréolé du centre vers la marge...". Moreover, in the same article Herink published a pale form of *X. moravicus* - forma *palescens*.

*Scleroderma fuscum* (Corda) Fischer, *Nat. Pflanzenfam.* 1: 336, 1899. Fig. 55-56.

The material studied consists of two globose fruitbodies, joined by their base, and macroscopically they fit the description of Calonge (1983). Microscopically, it shows olivaceous and globose spores, with reticulate ornamentation, surrounded by typical hyaline and cyanophilous cells.

It has only been previously recorded once in our country, in Madrid by Calonge (*loc. cit.*).

*Material examined:* Santa Fe del Montseny (Barcelona), in humus of *Fagus sylvatica* and *Pinus sp.*, 17/X/89, leg. C. Lucchini. H.AH 11867.

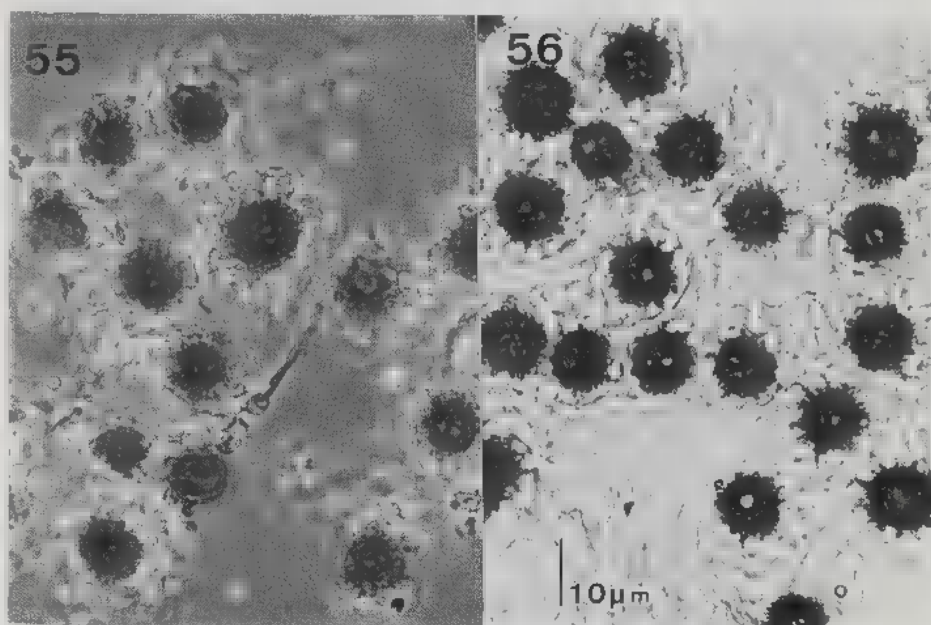


Fig. 55-56. *Scleroderma fuscum* (Corda) Fischer. 55-56: spores.

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